

## Education

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### B.Eng, Computer Engineering @ Ryerson University

Expected April 2024

- Deans list 2020 - 2023, 3.8/4.0 GPA
- Recipient of **2021 and 2022** Deans Research Fund Undergraduate Research Opportunity (\$20,000 funding)
- Course and project experience in **multi-threading, real-time operating systems (RTOS), MISRA C/C++ coding standards, FPGA programming, embedded systems, signal processing, audio and image compression**

## Experience

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### Software Engineer Intern - Amazon (AWS)

May 2023 - Aug 2023

- Engineered local monitoring (device metrics) and local notification (device alerts) features for AWS Snow family devices using TypeScript, React & Electron. This enables AWS edge compute customers to view device metrics & alerts without stable internet connection
- Involved in scripting, installing software, applying patches, monitoring and trouble shooting alerts in AWS Snow (Linux) devices
- Designed UI/UX using ReactJS, with multiple new pages for allowing customers to interact with AWS Snow family devices
- Led both projects through the entire development cycle (design, implementation, and testing)

### Electrical Control Systems Lead - TMU Formula SAE

Sept 2022 - May 2023

- Engineered an electronic dashboard screen for the team's first electric vehicle. Used to display vehicle speed, battery health, and emergency errors
- Bridged the vehicles internal CAN bus to a development board (Teensy 4.0), which was then programmed in C++ to translate vehicle data into a suitable format for display on an LCD screen

### Software Developer - Ryerson Robotics, Mechatronics, and Automation Lab

Jan 2021 - Aug 2022

- Designed current, velocity and position control programs for robotic motors using C++ / ROS in Linux
- Wrote algorithms for image processing of a dataset to obtain a mathematical representation of image data with ~97% accuracy
- Developed a CNN + LSTM neural network architecture for real time pose estimation of a robotic catheter using video feed
- Implemented data collection process and neural network architecture for detecting forces on a robotic catheter during surgery, with a ~0.1N mean average error
- Lead author on force estimation research paper [[LINK](#)], presented at CSME Congress 2022

## Projects

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### [flightmap.live](#)

- Designed a real-time 3D flight tracking website with support for over 4000 airports. Uses WebGL, JavaScript, HTML/CSS and Python

### Vehicle Restoration

- Restored a \$500 1984 BMW E30 with 500k km. Installed new timing belt, overhauled cooling system, installed lowering springs, installed shifter bushings and restored paint job.
- Currently restoring an 2003 BMW E46 with 300k km. Installed new front control arms, tie-rods and sway bar. Overhauled cooling system, installed new window motors, new brakes/rotors, new bumper and fixed wiring issues with the ECU.

### AI Projects

- Developed a CNN using TensorFlow and Python to recognize a set of 42 different traffic signs in various settings with ~95% accuracy
- Designed AI that analyzes a users query and returns the appropriate answer from a corpus of Wikipedia pages via tf-idf
- Utilized a K-Nearest-Neighbours classifier to determine a users purchase intent when online shopping

### Automated cable tester - EcoCar Club

- Designed and soldered a PCB utilizing an AT-MEGA328p micro-controller to test integrity of 8 pin cable connections
- Wrote software in C++ to automate testing and display results on a LCD screen via I2C communication protocol